

## CLAIMS:

1. Receiver for receiving a radio frequency signal (10) having a center frequency that is comprised in one of at least two frequency bands, the receiver comprising:
  - oscillating means (20) for generating a first mixing signal (11) having a first frequency;
  - 5 - a frequency divider (22) arranged to derive a second mixing signal (13) from the first mixing signal;
  - a first mixer (12) arranged to down-convert the radio frequency signal (10) to a first lower frequency signal (15) using the first mixing signal (11); and
  - a second mixer arranged to down-convert the first low frequency signal to a
  - 10 second lower frequency signal (18) using the second mixing signal (13);

in which a division factor of the frequency divider and a ratio between the center frequency and the first frequency are determined by the one of at least two frequency bands.
- 15 2. Receiver according to claim 1, wherein the receiver comprises a phase shifter (34) for shifting the phase of the second mixing signal (13).
3. Transmitter for transmitting a radio frequency signal (53) having a center frequency that is comprised in one of at least two frequency bands, the transmitter
- 20 comprising:
  - oscillating means (56) for generating a second mixing signal (55) having a second frequency;
  - a frequency divider arranged (52) to derive a first mixing signal (54) from the second mixing signal (55);
  - 25 - a first mixer (57) arranged to up-convert a lower frequency signal (50) to a higher frequency signal using the first mixing signal (54); and
  - a second mixer (59) arranged to up-convert the higher frequency signal (51) to a radio frequency signal (53) using the first second signal (55);

in which a division factor of the frequency divider and a ratio between the center frequency and the first frequency are determined by the one of at least two frequency bands

- 5 4. Transceiver comprising a receiver (62) that is capable of receiving a radio frequency signal (10) having a center frequency that is comprised in one of at least two frequency bands, the receiver (62) comprising:
- oscillating means (20) for generating a first mixing signal (11) having a first frequency;
  - 10 - a frequency divider (22) arranged to derive a second mixing (13) signal from the first mixing signal (11);
  - a first mixer (12) arranged to down-convert the radio frequency signal (10) to a first lower frequency signal (15) using the first mixing signal (11); and
  - a second mixer (16) arranged to down-convert the first low frequency signal
  - 15 (15) to a second lower frequency signal (18) using the second mixing signal (13);

in which a division factor of the frequency divider and a ratio between the center frequency and the first frequency are determined by the one of at least two frequency bands.

- 20 5. Transceiver according to claim 4, comprising a transmitter (61) that is capable of transmitting a second radio frequency (53) signal having a second center frequency that is comprised in one of the at least two frequency bands, the transmitter comprising:
- a third mixer (57) arranged to up-convert a lower frequency signal to a higher frequency signal using a third mixing signal (54) having a third frequency; and
  - 25 - a fourth mixer (59) arranged to up-convert the higher frequency signal (51) to the radio frequency signal (53) using a fourth mixing signal (55);

6. Transceiver according to claim 5, wherein the oscillating means (20,56) are further arranged to generate the fourth mixing signal (55) having a third frequency and the
- 30 transceiver further comprises a second frequency divider (52) for deriving the third mixing signal (54) from the fourth mixing signal (55), in which a second division factor of the second frequency divider and a second ratio between the second center frequency and the third are determined by the one of at least two frequency bands.

7. Transceiver according to claim 6, wherein the first mixing signal (11) equals the third mixing signal (54) and the second mixing signal (13) equals the fourth mixing signal (55).
- 5 8. Method for receiving a radio frequency signal (10) having a center frequency that is comprised in one of at least two frequency bands, the method comprising the steps of:
- generating a first mixing signal (11) that has a ratio to the center frequency, which ratio is determined by the one of at least two frequency bands;
  - deriving a second mixing signal (13) from the first mixing signal by using a
  - 10 frequency divider (22) having a division factor which is determined by the one of at least two frequency bands comprising the center frequency;
  - down-converting the radio frequency signal to a first lower frequency signal (15) using the first mixing signal (11); and
  - down-converting the first lower frequency signal (15) to a second lower
  - 15 frequency signal (18) using the second mixing signal (13).